IN THE CLAIMS

1. **(Currently Amended)** A quadrature modulator comprising a local oscillator for oscillating at an oscillation frequency equal to 4/(2N+1) times a carrier frequency where N is a natural number, a frequency conversion block for multiplying said oscillation frequency by a factor of (2N+1)/2, a first frequency divider to divide an output from said frequency conversion block by a factor of two to output a pair of carrier waves having therebetween a phase difference of 90 degrees, first and second multipliers for modulating said carrier waves with a digital baseband signal to output a pair of modulated signals, and an adder for adding said modulated signals together to output a digital carrier signal having said carrier ~~frequency.~~ frequency, said frequency conversion block including a single second frequency divider for dividing said oscillation frequency by a factor of two to generate a divided frequency.

2. **(Currently Amended)** ~~The quadrature modulator as defined in claim 1,~~ A quadrature modulator comprising a local oscillator for oscillating at an oscillation frequency equal to 4/(2N+1) times a carrier frequency where N is a natural number, a frequency conversion block for multiplying said oscillation frequency by a factor of (2N+1)/2, a first frequency divider to divide an output from said frequency conversion block by a factor of two to output a pair of carrier waves having therebetween a phase difference of 90 degrees, first and second multipliers for modulating said carrier waves with a digital baseband signal to output a pair of modulated signals, and an adder for adding said modulated signals together to output a digital carrier signal having said carrier frequency, wherein said N is equal to "1", and said frequency conversion block includes a second frequency divider for dividing said oscillation frequency by a factor of two to generate a divided frequency, a frequency mixer for mixing outputs from said local

oscillator and said frequency divider to generate a first signal having a frequency equal to a sum of said oscillation frequency and said divided frequency.

3. **(Original)** The quadrature modulator as defined in claim 2, wherein said frequency conversion block further includes a band-pass-filter (BPF) for removing an image signal from said first signal.

4. **(Original)** The quadrature modulator as defined in claim 2, wherein said frequency mixer is a double-balanced mixer.

5. **(Currently Amended)** ~~The quadrature modulator as defined in claim 1,~~ A quadrature modulator comprising a local oscillator for oscillating at an oscillation frequency equal to 4/(2N+1) times a carrier frequency where N is a natural number, a frequency conversion block for multiplying said oscillation frequency by a factor of (2N+1)/2, a first frequency divider to divide an output from said frequency conversion block by a factor of two to output a pair of carrier waves having therebetween a phase difference of 90 degrees, first and second multipliers for modulating said carrier waves with a digital baseband signal to output a pair of modulated signals, and an adder for adding said modulated signals together to output a digital carrier signal having said carrier frequency, wherein said N is equal to or more than "2", and said frequency conversion block includes a second frequency divider for dividing said oscillation frequency by a factor of two to output a divided frequency, N frequency mixers cascaded from one another for mixing said oscillation frequency and said divided frequency or an output from a preceding one of said frequency mixers to output a first signal having a frequency equal to a sum of said

oscillation frequency and said divided frequency or a frequency of another first signal output from said preceding one of said frequency mixers.

6. **(Original)** The quadrature modulator as defined in claim 5, wherein said frequency conversion block further includes a BPF cascaded from an N-th one of said frequency mixers to remove an image signal from said first signal from said N-th one of said frequency mixers.

7. **(Original)** The quadrature modulator as defined in claim 5, wherein each of said frequency mixers is a double-balanced mixer.

8. **(Currently Amended)** A method comprising the steps of generating a oscillation frequency equal to 4/(2N+1) times a carrier frequency where N is a natural number, multiplying said oscillation frequency by a factor of ~~(2N+1)/2,~~ (2N+1)/2 using N frequency mixers, dividing said multiplied oscillation frequency by a factor of two to generate a pair of orthogonal carrier waves having said carrier frequency, modulating said orthogonal carrier waves with a digital baseband signal to output a carrier signal having said carrier frequency.

9. **(New)** A quadrature modulator comprising:

a digital signal generator for generating a digital baseband signal;

a local oscillator for oscillating at an oscillation frequency equal to 4/(2N+1) times a carrier frequency where N is a natural number;

a frequency conversion block for multiplying said oscillation frequency by a factor of (2N+1)/2; and

a quadrature modulation block including:

a first frequency divider to divide an output from said frequency conversion block by a factor of two to output a pair of carrier waves having therebetween a phase difference of 90 degrees;

first and second multipliers for modulating said carrier waves with said digital baseband signal to output a pair of modulated signals; and

an adder for adding said modulated signals together to output a digital carrier signal having said carrier frequency,

wherein said frequency conversion block includes a band-pass-filter (BPF) for removing an image signal from said first signal, and

wherein an output signal from said band-pass-filter (BPF) of said frequency conversion block is supplied as an input signal to said first frequency divider of said quadrature modulation block.